

## MILITARY SPECIFICATION

BOXES, AMMUNITION PACKING: -WOOD,  
(W/PLYWOOD TOP AND BOTTOM) NAILED

This amendment forms a part of Military Specification MIL-B-48024 (AR), dated 3 February 1972, and is approved for use within the U.S. Army Armament Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

Page 2

### 2. Applicable Documents

Specifications, Federal:

Delete "TT-W-572-Wood Preservative, Water Repellent".

Specifications, Military

Delete "MIL-W-6110-Wood, Determination of Moisture Content"

PAGE 4

### 2.1 Drawings, Army

Add "8796523 - Hasp  
8796524 - Hinge

Add new paragraph 2.2 as follows:

"2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

MIL-B-48024 (AR)  
AMENDMENT 3

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM-D2016 - Moisture Content of Wood, Standard Test  
Methods for

ASTM-D4268 - Testing Fiber Ropes, Standard Methods for

(Application for copies should be addressed to the American  
Society for Testing and Materials, 1916 Race Street,  
Philadelphia, PA 19103)"

PAGE 9

3.5 Metal fittings

After "9266797 - Hasp", add "(except Figure 5)"

After "9266798 - Hinge, Pinless (Tang and Receiver)", add  
"(except Figure 5)"

After "MS51862 - Screw, Tapping . . . . .  
. . . MS51862-24", add "(except Figure 5)"

Add "8796523 - Hasp (Figure 5)"

Add "8796524 - Hinge (Figure 5)"

Delete "Any box for which hardware is specified, shall  
have one hasp and one pinless hinge regardless of box  
length" and substitute "Any box for which hardware is  
specified, shall have one hasp and one pinless hinge  
regardless of box length. NOTE: Figure 5 will use hinge  
8796524 in place of the pinless hinge."

PAGE 10

- \* 3.7 Box identification, second sentence. Delete in its  
entirety and substitute:

"The letters "PA" shall be annotated on all boxes  
subjected to the PQ 56 (Copper-8-quinolinolate) preservative  
treatment in accordance with 3.12. The letters "PB" shall  
be annotated on all boxes subjected to the M-GARD W550 (zinc  
naphthenate emulsifiable) preservative treatment in  
accordance with 3.12. The letters "PC" shall be annotated  
on all boxes subjected to either Cunapsol 5 (copper  
naphthenate) or the M-GARD W510 (copper naphthenate)  
preservative in accordance with 3.12."

\* 3.12 Preservative treatment. Delete in its entirety and substitute:

"3.12 Preservative treatment. Grade A or Grade B boxes or the finished wood parts thereof, shall be completely immersed for a minimum of one minute in a solution of wood preservative:

- a. PQ56 reduced with water down to 1.8 percent copper-8-quinolinolate as solution (see 6.8).
- b. An emulsion of wood preservative M-GARD W550 (zinc naphthenate) reduced with water down to 3 percent zinc as metal (see 6.9).
- c. An emulsion of M-GARD W510 (copper naphthenate) reduced down with water to 2 percent copper as metal (see 6.13).
- d. A solution of Cunapsol 5 (copper naphthenate) reduced down with water to 2 percent copper as metal (see 6.14).

Alternatively, Grade A or Grade B boxes or the finished wood parts thereof shall be completely flooded for a minimum of one minute in PQ 56, M-GARD W550, M-GARD W510 or Cunapsol 5 preservative, as applicable, as to inundate all interior and exterior surfaces (when finished wood parts are dipped). Care shall be exercised to assure complete coverage of all surfaces of the board. After the dip treatment, the boxes must be air dried (or dried for an appropriate time in a kiln or oven) for a period of 24 hours minimum in a well ventilated area allowing full air circulation around all surfaces of the wood box. The boxes must be dried prior to shipment.

The box manufacturer will be required to obtain and provide all available safety, health and environmental data i.e., EPA Hazard Data Sheets, OSHA Safety Data Sheets etc. Of specific interest are the acute, subchronic and chronic toxicity data. Also, the manufacturer will obtain and provide any special safety, health and environmental information (apparatus and procedures) to be used throughout the treated box duty life and disposal."

3.12.1 Presence of PQ 56 (Copper-8-quinolinolate) preservative. When treated with PQ 56, the box shall show evidence of discoloration when tested as specified in 4.4.5.

3.12.2 Presence of M-GARD W550 (zinc naphthenate emulsifiable) preservative. When treated with M-GARD W550, the box shall show evidence of discoloration when treated as specified in 4.4.6.

3.12.3 Presence of M-GARD W510 (copper naphthenate) or Cunapsol 5 (copper naphthenate) preservative. When treated with M-GARD W550 or Cunapsol 5, the box shall show evidence of discoloration when treated as specified in 4.4.7."

## PAGE 24

\* 4.3.3.5 Freedom from solvent. and 4.3.3.5.1 Retest. Delete in their entirety and substitute:

"4.3.3.5 Presence of wood preservative. (see 3.12), Major defect. A sample of 15 boxes shall be selected at random, from each lot, for this test. Four individual boards of each box shall be subjected to the test specified in 4.4.5, 4.4.6, or 4.4.7, as applicable. If one or more boards fail to meet the applicable requirement, the box should be classed defective. Failure of any box to comply with the requirements shall be cause for rejection of the lot."

4.3.3.6 Presence of pentachlorophenol preservative. Delete in its entirety.

4.4.2 Moisture content, second line: Delete "Specification MIL-W-6110" and substitute "ASTM-D2016."

4.4.4 Rope breaking strength, first sentence: Delete "Method 4106 of Specification CCC-T-191" and substitute "ASTM D4268".

4.4.5 Freedom from solvent. Delete in its entirety and substitute:

"4.4.5 Presence of PQ56 (copper-8-quinolinolate) preservative.

4.4.5.1 Primary method.

4.4.5.1.1 Materials and equipment. The materials and equipment required are as follows:

a. PQ Check(indicator): The formulation contains 10 parts by weight, of sodium diethyldithiocarbamate trihydrate (see 6.10) and 90 parts by weight of distilled water.

MIL-B-48024 (AR)  
AMENDMENT 3

b. Dropper: An ordinary glass tube eyedropper may be used.

4.4.5.1.2 Test procedure. Two drops of PQ Check (indicator) shall be applied to the wood surface. An immediate dark brown coloration and the spreading of the drops shall indicate PQ 56 treatment.

4.4.5.2 Alternate method.

4.4.5.2.1 Materials and equipment. The material and equipment required are as follows:

a. Reagent. Dissolve 0.5 grams chrome azurol S concentrate (see 6.11) and 5.0 grams sodium acetate in 80 ml of distilled water and then dilute further to 500 ml total with distilled water.

b. Sprayer. A common manual (fly) sprayer type applicator shall be used.

4.4.5.2.2 Test procedure. Spray solution over surface of dried wood. A deep blue color reveals the presence of copper (from the copper-8-quinolinolate)."

\* 4.4.6 Presence of pentachlorophenol preservative. Delete in its entirety and substitute:

"4.4.6 Presence of M-GARD W550 (zinc naphthenate emulsifiable) preservative.

4.4.6.1 Materials and equipment. The materials and equipment required are as follows:

a. Reagent. Dissolve 0.1 grams of dithizone (diphenylthiocarbazone) (see 6.12) in 100 ml of either methyl ethyl ketone or 100 ml of chloroform. (Note: This solutions may be stored for long periods of time).

b. Eye dropper. An ordinary glass tube eye dropper may be used.

4.4.6.2 Test procedure. Five drops of the solution shall be applied to the wood surface. The indicator will turn red when zinc (M-GARD W550) is present. The color green indicates that the preservative is not present. Both colors fade quickly in the presence of light."

\* Add new paragraph as follows:

"4.4.7 Presence of M-GARD W510 (copper naphthenate emulsifiable) or Cunapsol 5 (copper naphthenate) preservative.

4.4.7.1 Materials and equipment. The materials and equipment required are as follows:

a. Reagent. Dissolve 0.5 grams chrome azurol "S" concentrate (see 6.11) and 5.0 grams sodium acetate in 80 ml of distilled water and then dilute further to 500 ml total with distilled water.

b. Sprayer. A common manual (fly) sprayer type applicator shall be used.

4.4.7.2 Test procedure. Spray solution over surface of dried treated wood. A deep blue color reveals the presence of copper (from copper naphthenate)."

6.6 Delete in its entirety.

\* Add new paragraph as follows:

"6.8 PQ 56. PQ 56, for the 1.8 percent copper-8-quinolinolate solution, may be obtained from the Chapman Chemical Company, P.O. Box 9158, Memphis, TN 38019 or equivalent facility.

6.9 M-GARD W550. M-GARD W550 (zinc hydronap) for the 3 percent zinc as metal solution, may be obtained from Mooney Chemicals Inc., 2301 Scranton Road, Cleveland, Ohio 44113-9988 or equivalent facility.

6.10 Sodium diethylthiocarbamate trihydrate. Sodium diethylthiocarbamate trihydrate may be obtained from J T. Baker Chemical Co., Phillipsburg, New Jersey 08865 or equivalent facility.

6.11 Chrome azurol "S". Chrome azurol "S" may be obtained from Eastman Chemical Co., Rochester, New York or equivalent facility.

6.12 Dithizone. Dithizone (diphenylthiocarbazone) may be obtained from J.T. Baker Chemical Co., Phillipsburg, New Jersey 08865 or equivalent facility.

\* 6.13 M-GARD W510. M-GARD W510 (copper naphthenate), for 2 percent copper as metal, may be obtained from Mooney Chemicals Inc., 2301 Scranton Road, Cleveland, Ohio 444113-9988 or equivalent facility.

\* 6.14 Cunapsol 5. Cunapsol 5 (copper naphthenate), for 2 percent copper as metal, may be obtained from Chapman Chemical Company, PO Box 9158, Memphis, TN 38019 or equivalent facility."

PAGE 29

20.3 Standards: Delete "Federal Test Method STD No. 151 Metals, Test Methods" and substitute "ASTM-E8-Tension Testing of Metallic Materials."

PAGE 32

40.1.3 Breaking strength test. first sentence: Delete "Method 211.1, Federal Test Method STD No. 151, Metals Test Methods" and substitute "ASTM-E8".

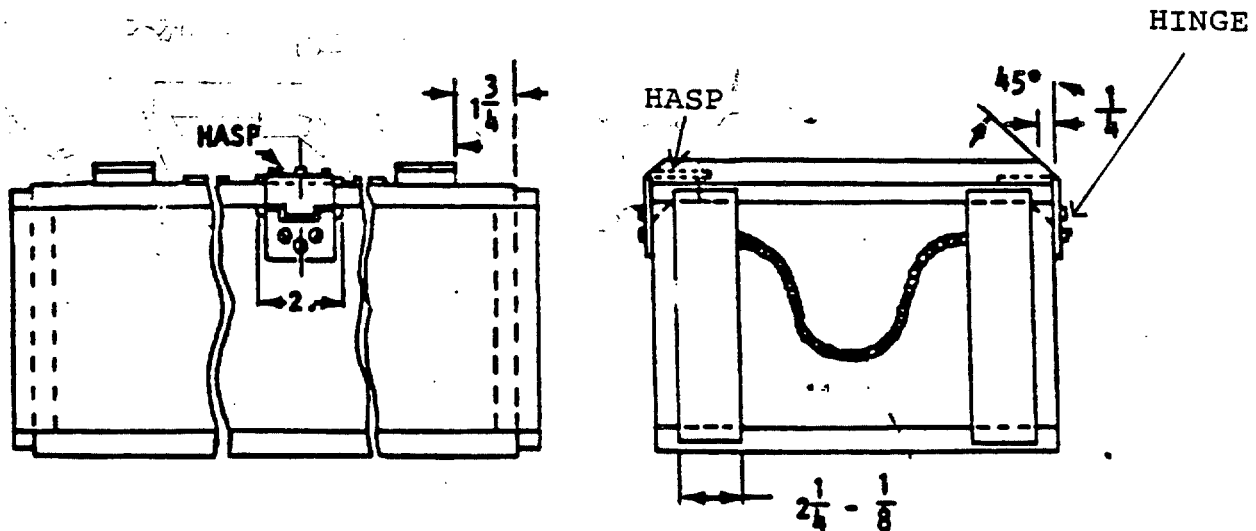
40.1.4 Percentage elongation test. first sentence: Delete "Method 211.1, Federal Test Method STD. No. 151, Metals, Test Methods" and substitute "ASTM-E8".

PAGE 42

Figure 5. Delete in its entirety and substitute the attached Figure 5.

The margins of this amendment are marked with an asterisk or vertical line to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

MIL-B-48024 (AR)  
AMENDMENT 3



NOTES:

- a. Center line of swivel located so that hasp passes tightly over swivel.
- b. See Figure 1 for construction of box.
- c. See Figure 1 for view of rope handle.
- d. See para. 3.5 for hardware requirements.
- e. Unless otherwise specified all sides, ends and end cleats shall be  $\frac{11}{16}$  inch thick wood. The lid shall be  $\frac{3}{4}$  inch 5 ply plywood. The bottom shall be  $\frac{3}{8}$  inch plywood.
- f. See para. 3.4 for rope handle requirements. See Figure 1A for length of rope handle.
- g. Both hasp and hinge are located at center line of box.

FIGURE 5. Type II, Class 2 Box.



MIL-B-48024 (AR)  
AMENDMENT 3

Custodian:  
Army - AR

Preparing activity  
Army - AR

(Project 8140-A747)